



6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R06-OAR-2015-0426; FRL-9990-62-Region 6]

Air Plan Approval; Arkansas; Regional Haze Five-Year Progress Report State

Implementation Plan

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: Pursuant to the Federal Clean Air Act (CAA or the Act), the Environmental Protection Agency (EPA) is proposing to approve a State Implementation Plan (SIP) submitted by the Governor through the Arkansas Department of Environmental Quality (ADEQ) on June 2, 2015. The SIP submittal addresses requirements of the federal regulations that direct the State to submit a periodic report that assesses progress toward reasonable progress goals (RPGs) established for regional haze with a determination of adequacy of the existing implementation plan.

DATES: Written comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Submit comments, identified by Docket No. EPA-R06-OAR-2015-0426, at <https://www.regulations.gov> or via email to grady.james@epa.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov*. The EPA may publish any comment received to its public docket. Do not submit any information electronically that is considered to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions

(audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment with multimedia submissions and should include all discussion points desired. The EPA will generally not consider comments or their contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing systems). For additional submission methods, please contact James E. Grady, (214) 665-6745, grady.james@epa.gov. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

Docket: The index to the docket for this action is available electronically at www.regulations.gov and in hard copy at the EPA Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas. While all documents in the docket are listed in the index, some information may be publicly available only at the hard copy location (e.g., copyrighted material), and some may not be publicly available at either location (e.g., CBI).

FOR FURTHER INFORMATION CONTACT: James E. Grady, (214) 665-6745; grady.james@epa.gov. To inspect the hard copy materials, please schedule an appointment with Mr. Grady or Mr. Bill Deese at 214-665-7253.

SUPPLEMENTARY INFORMATION: Throughout this document “we,” “us,” or “our” each mean “the EPA.”

Table of Contents:

- I. Background
 - A. The Regional Haze Program
 - B. Previous Actions on Arkansas Regional Haze
 - C. Arkansas’ Regional Haze Progress Report SIP Revision
- II. Evaluation of Arkansas’ Regional Haze Progress Report SIP Revision
 - A. Class I Areas
 - B. Status of Implementation of Measures
 - 1. BART Controls
 - 2. Reasonable Progress Source Controls

3. CAIR and CSAPR
4. Source Retirement and Replacement Schedules
5. Agriculture and Forestry Smoke Management
6. Additional Federal Programs
7. EPA's Conclusion on the Status of Implementation of Measures
- C. Emission Reductions from Implementation of Measures
- D. Visibility Conditions and Changes
- E. Emission Tracking
- F. Assessment of Changes Impeding Visibility Progress
- G. Assessment of Current Strategy to Meet RPGs
- H. Review of Visibility Monitoring Strategy
- I. Determination of Adequacy of Existing Implementation Plan
- J. Consultation with Federal Land Managers
- III. The EPA's Proposed Action
- IV. Statutory and Executive Order Reviews

I. Background

A. The Regional Haze Program

Regional haze is visibility impairment that occurs over a wide geographic area primarily from the pollution of fine particles ($PM_{2.5}$) emitted into the air.¹ Fine particles causing haze consist of sulfates (SO_4^{2-}), nitrates (NO_3^-), organics, elemental carbon (EC), and soil dust.² Airborne $PM_{2.5}$ can scatter and absorb the incident light and, therefore, lead to atmospheric opacity and horizontal visibility degradation. Regional haze limits visual distance and reduces color, clarity, and contrast of view. $PM_{2.5}$ can cause serious adverse health effects and mortality in humans. It also contributes to environmental effects such as acid deposition and eutrophication. Emissions that affect visibility include a wide variety of natural and man-made

¹ Fine particles are less than or equal to 2.5 microns (μm) in diameter and usually form secondary in nature indirectly from other sources. Particles less than or equal to 10 μm in diameter are referred to as PM_{10} . Particles greater than $PM_{2.5}$ but less than PM_{10} are referred to as coarse mass. Coarse mass can contribute to light extinction as well and is made up of primary particles directly emitted into the air. Fine particles tend to be man-made, while coarse particles tend to have a natural origin. Coarse mass settles out from the air more rapidly than fine particles and usually will be found relatively close to emission sources. Fine particles can be transported long distances by wind and can be found in the air thousands of miles from where they were formed.

² Organic carbon (OC) can be emitted directly as particles or formed through reactions involving gaseous emissions. Elemental carbon, in contrast to organic carbon, is exclusively of primary origin and emitted by the incomplete combustion of carbon-based fuels. Elemental carbon particles are especially prevalent in diesel exhaust and smoke from wild and prescribed fires.

sources. Reducing PM_{2.5} and its precursor gases in the atmosphere is an effective method of improving visibility. PM_{2.5} precursors consist of sulfur dioxide (SO₂), nitrogen oxides (NO_x), ammonia (NH₃), and volatile organic compounds (VOCs).

Data from the existing visibility monitoring network, “Interagency Monitoring of Protected Visual Environments” (IMPROVE), shows that visibility impairment caused by air pollution occurs virtually all of the time at most national parks and wilderness areas. In 1999, the average visual range³ in many Class I areas (i.e., national parks and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States was 100-150 kilometers (km), or about one-half to two-thirds of the visual range that would exist under estimated natural conditions.⁴ In most of the eastern Class I areas of the United States, the average visual range was less than 30 km, or about one-fifth of the visual range that would exist under estimated natural conditions. CAA programs have reduced emissions of some haze-causing pollution, lessening some visibility impairment and resulting in partially improved average visual ranges.⁵

In section 169A of the 1977 CAA Amendments, Congress created a program for protecting visibility in the nation’s national parks and wilderness areas. This section of the CAA establishes as a national goal the prevention of any future, and the remedying of any existing, visibility impairment in mandatory Class I Federal areas where impairment results from

³ Visual range is the greatest distance, in km or miles, at which a dark object can be viewed against the sky by a typical observer.

⁴ 64 FR 35715 (July 1, 1999).

⁵ An interactive “story map” depicting efforts and recent progress by EPA and states to improve visibility at national parks and wilderness areas may be visited at: <http://arcg.is/29tAbS3>.

manmade air pollution.⁶ Congress added section 169B to the CAA in 1990 that added visibility protection provisions, and the EPA promulgated final regulations addressing regional haze as part of the 1999 Regional Haze Rule, which was most recently updated in 2017.⁷ The Regional Haze Rule revised the existing 1980 visibility regulations and established a more comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in the EPA's broader visibility protection regulations at 40 CFR 51.300-309. The regional haze regulations require states to demonstrate reasonable progress toward meeting the national goal of a return to natural visibility conditions for Class I areas both within and outside states by 2064. The CAA requirement in section 169A(b)(2) to submit a regional haze SIP applies to all fifty states, the District of Columbia, and the Virgin Islands. States were required to submit the first implementation plan addressing visibility impairment caused by regional haze no later than December 17, 2007.⁸

Section 169A(b)(2)(A) of the CAA directs states to evaluate the use of Best Available Retrofit Technology (BART) controls at certain categories of existing major stationary sources⁹ built between 1962 and 1977. These large, often under-controlled, older stationary sources are required to procure, install, and operate BART controls to address visibility impacts

⁶ Mandatory Class I Federal areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. The EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility was identified as an important value. The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. Although states and tribes may designate additional areas as Class I, the requirements of the visibility program set forth in the CAA applies only to "mandatory Class I Federal areas." Each mandatory Class I Federal area is the responsibility of a "Federal Land Manager." When the term "Class I area" is used in this action, it means "mandatory Class I Federal areas." [See 44 FR 69122, November 30, 1979 and CAA Sections 162(a), 169A, and 302(i)].

⁷ See the July 1, 1999 Regional Haze Rule final action (64 FR 35714), as amended on July 6, 2005 (70 FR 39156), October 13, 2006 (71 FR 60631), June 7, 2012 (77 FR 33656) and on January 10, 2017 (82 FR 3079).

⁸ See 40 CFR 51.308(b). The EPA's regional haze regulations require subsequent updates to the regional haze SIPs. 40 CFR 51.308(g)-(i).

⁹ See 42 U.S.C. 7491(g)(7) (listing the set of "major stationary sources" potentially subject-to-BART)

from them. Under the Regional Haze Rule, any of these BART-eligible sources¹⁰ that are reasonably anticipated to cause or contribute to visibility impairment in a Class I area are determined to be subject-to-BART.¹¹ States are directed to conduct BART determinations for each source classified as subject-to-BART. 40 CFR 51.308(e)(1)(ii)(A) requires states (or EPA in the case of a FIP) to identify the level of control representing BART after considering the five statutory factors set out in CAA section 169A(g)(2). States must establish emission limits, a schedule of compliance, and other measures consistent with the BART determination process for each source subject-to-BART. In lieu of requiring source-specific BART controls, states also have the flexibility to adopt alternative measures, as long as the alternative provides greater reasonable progress toward improving visibility than BART. Namely, the alternative must be “better than BART.”¹²

B. Previous Actions on Arkansas Regional Haze

Arkansas submitted a regional haze SIP on September 9, 2008, to address the requirements of the first regional haze implementation period. On August 3, 2010, the State submitted a SIP revision with mostly non-substantive changes that addressed Arkansas Pollution Control and Ecology Commission (APCEC) Regulation 19 Chapter 15.¹³ On September 27,

¹⁰ See 40 CFR 51 Appendix Y, II. How to Identify BART-eligible Sources.

¹¹ Under the BART Guidelines, states may select a visibility impact threshold, measured in deciviews (dv), below which a BART-eligible source would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this threshold in the SIP and state the basis for its selection of that value. Any source with visibility impacts that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emission sources affecting the Class I areas at issue and the magnitude of the individual sources’ impacts. Any visibility impact threshold set by the state should not be higher than 0.5 dv. See 40 CFR 51, Appendix Y, section III.A.1.

¹² The required content of BART alternative measures is codified at 40 CFR 51.308(e)(2).

¹³ The September 9, 2008 SIP submittal included APCEC Regulation 19, Chapter 15, which is the state regulation that identified the BART-eligible and subject-to-BART sources in Arkansas and established BART emission limits for subject-to-BART sources. The August 3, 2010 SIP revision did not revise Arkansas’ list of BART-eligible and subject-to-BART sources or revise any of the BART requirements for affected sources. Instead, it included mostly non-substantive revisions to the state regulation.

2011, the State submitted supplemental information to address the regional haze requirements. The EPA collectively refers to the original 2008 submittal and these revisions together as the 2008 Arkansas Regional Haze SIP. On March 12, 2012, the EPA partially approved and partially disapproved the 2008 Arkansas Regional Haze SIP.¹⁴ Specifically, the EPA disapproved certain BART compliance dates; the State's identification of certain BART-eligible sources and subject-to-BART sources; certain BART determinations for NO_x, SO₂, and PM; the State's reasonable progress analysis and RPGs; and a portion of the State's long-term strategy (LTS). The remaining provisions of the 2008 Arkansas Regional Haze SIP were approved. The final partial disapproval started a two-year federal implementation plan (FIP) clock that obligated the EPA to either approve a SIP revision or promulgate a FIP to address the disapproved portions of the action.¹⁵ Because a SIP revision was not received and since the FIP clock expired in April 2014, the EPA promulgated a FIP (the Arkansas Regional Haze FIP) on September 27, 2016 to address the disapproved portions of the 2008 Arkansas Regional Haze SIP.¹⁶ Among other things, the FIP established SO₂, NO_x, and PM emission limits under the BART requirements for nine units at six facilities: Arkansas Electric Cooperative Corporation (AECC) Carl E. Bailey Plant Unit 1 Boiler; AECC John L. McClellan Plant Unit 1 Boiler; SWEPCO Flint Creek Plant Boiler No. 1; Entergy Lake Catherine Plant Unit 4 Boiler; Entergy White Bluff Plant Units 1 and 2 Boilers and the Auxiliary Boiler; and the Domtar Ashdown Mill Power Boilers No. 1 and 2. The FIP also

¹⁴ See the final action on March 12, 2012 (77 FR 14604).

¹⁵ Under CAA section 110(c), EPA is required to promulgate a FIP within 2 years of the effective date of a finding that a state has failed to make a required SIP submission or has made an incomplete submission, or of the date that EPA disapproves a SIP in whole or in part. The FIP requirement is terminated only if a state submits a SIP, and EPA approves that SIP as meeting applicable CAA requirements before promulgating a FIP. CAA section 302(y) defines the term "federal implementation plan" in pertinent part, as a plan (or portion thereof) promulgated by EPA "to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy" in a SIP, and which includes enforceable emission limitations or other control measures, means or techniques (including economic incentives, such as marketable permits or auctions or emissions allowances).

¹⁶ See FIP final action (81 FR 66332) as corrected on October 4, 2016 (81 FR 68319).

established SO₂ and NO_x emission limits under the reasonable progress requirements for the Entergy Independence Plant Units 1 and 2.

Following petitions for reconsideration¹⁷ submitted by the State, industry, and ratepayers, the EPA issued a partial administrative stay of the effectiveness of the FIP for ninety days on April 25, 2017.¹⁸ During that period, on July 12, 2017, the State submitted a proposed SIP submittal (the Arkansas Regional Haze NO_x SIP revision) to address NO_x BART requirements for all EGUs and the reasonable progress requirements with respect to NO_x. These NO_x provisions were previously disapproved by the EPA in our 2012 final action for the 2008 Arkansas Regional Haze SIP. The Arkansas Regional Haze NO_x SIP submittal replaced all source-specific NO_x BART determinations established in the FIP with reliance upon the Cross-State Air Pollution Rule (CSAPR) emissions trading program for ozone (O₃) season NO_x as an alternative to NO_x BART. The SIP submittal addressed the NO_x BART requirements for Bailey Unit 1, McClellan Unit 1, Flint Creek Boiler No. 1, Lake Catherine Unit 4; White Bluff Units 1 and 2, and the Auxiliary Boiler. The revision did not address NO_x BART for Domtar Ashdown Mill Power Boilers No. 1 and 2. On February 12, 2018, we took final action to approve the Arkansas Regional Haze NO_x SIP revision and to withdraw the corresponding parts of the FIP.¹⁹

The State submitted another SIP revision (the Arkansas Regional Haze SO₂ and PM SIP revision) on August 8, 2018, that addressed most of the remaining parts of the 2008 Arkansas Regional Haze SIP disapproved in 2012. The August 8, 2018 SIP submittal was intended to replace the federal SO₂ and PM BART determinations for EGUs as well as the reasonable

¹⁷ See the docket associated with this proposed rulemaking for a copy of the petitions for reconsideration and administrative stay submitted by the State of Arkansas; Entergy Arkansas Inc., Entergy Mississippi Inc., and Entergy Power LLC (collectively “Entergy”); AECC; and the Energy and Environmental Alliance of Arkansas (EEAA).

¹⁸ 82 FR 18994.

¹⁹ See 82 FR 42627 (September 11, 2017) for the proposed approval. See also 83 FR 5915 and 83 FR 5927 (February 12, 2018) for the final action.

progress determinations established in the FIP with the State's own determinations. Specifically, the SIP revision addressed the applicable SO₂ and PM BART requirements for Bailey Unit 1; SO₂ and PM BART requirements for McClellan Unit 1; SO₂ BART requirements for Flint Creek Boiler No. 1; SO₂ BART requirements for White Bluff Units 1 and 2; SO₂, NO_x, and PM BART requirements for the White Bluff Auxiliary Boiler;²⁰ and Lake Catherine Unit 4. The submittal addressed the reasonable progress requirements for Independence Units 1 and 2 and all other sources in Arkansas. In addition, it established revised RPGs for Arkansas' two Class I areas and revised the State's long-term strategy provisions. The submittal did not address BART and associated long-term strategy requirements for Domtar Ashdown Mill Power Boilers No. 1 and 2. On November 30, 2018, we proposed approval of the Arkansas Regional Haze SO₂ and PM SIP revision and to withdraw the corresponding parts of the FIP.²¹

C. Arkansas' Regional Haze Progress Report SIP Revision

Under 40 CFR 51.308(g), each state is required to submit a progress report that evaluates progress toward the RPGs for each Class I area within the state and each Class I area outside the state which may be affected by emissions from within the state. In addition, 40 CFR 51.308(h) requires states to submit, at the same time as the progress report, a determination of adequacy of the existing regional haze implementation plan.²² The progress report for the first planning

²⁰ The Arkansas Regional Haze SO₂ and PM SIP revision established a new NO_x emission limit of 32.2 pph for the Auxiliary Boiler to satisfy NO_x BART and replace the SIP determination that we previously approved in the Arkansas Regional Haze NO_x SIP revision. In the Arkansas Regional Haze NO_x SIP revision, ADEQ incorrectly identified the Auxiliary Boiler as participating in the CSAPR trading program for O₃ season NO_x to satisfy the NO_x BART requirements but the new source specific NO_x BART emission limit corrects that error.

²¹ See 83 FR 62204 (November 30, 2018) for proposed approval. The Arkansas Regional Haze SO₂ and PM SIP revision also addressed separate CAA requirements related to interstate visibility transport under CAA section 110(a)(2)(D)(i)(II), but we did not propose action on that part of the submittal.

²² The Regional Haze Rule requires states to provide in the progress report an assessment of whether the current "implementation plan" is sufficient to enable the states to meet all established RPGs under 40 CFR 51.308(g). The term "implementation plan" is defined for purposes of the Regional Haze Rule to mean any SIP, FIP, or Tribal Implementation Plan. As such, the Agency may consider measures in any issued FIP as well as those in a state's regional haze plan in assessing the adequacy of the "existing implementation plan" under 40 CFR 51.308(g) and (h).

period is due five years after submittal of the initial regional haze SIP and must take the form of a SIP revision. Arkansas submitted its initial regional haze SIP on September 9, 2008.

On June 2, 2015, Arkansas submitted its progress report to the EPA in the form of a SIP revision under 40 CFR 51.308. As described in further detail in section II of this proposed rulemaking, to address the progress report requirements, the State provided: (1) a description of the status of measures in the approved regional haze SIP; (2) a summary of emission reductions achieved; (3) an assessment of visibility conditions for each Class I area in the state (and for two Class I areas in Missouri); (4) an analysis tracking the changes in emissions from sources and activities within the state; (5) an assessment of any significant changes in anthropogenic emissions within or outside the state that have limited or impeded progress in reducing pollutant emissions and improving visibility; (6) an assessment of whether the approved regional haze SIP elements and strategies are sufficient to enable the State (and other states with Class I areas affected by emissions from the state) to meet all established RPGs; (7) a review of the State's visibility monitoring strategy; and (8) a determination of adequacy of the existing implementation plan.

II. Evaluation of Arkansas' Regional Haze Progress Report SIP Revision

On June 2, 2015, the EPA received Arkansas' periodic report on progress for the State's regional haze SIP in the form of a SIP revision. That submission is the subject of this proposed approval. The periodic report for the first implementation period assessed visibility progress toward the 2018 RPGs for Class I areas in the state. It also assessed visibility progress in general for two Class I areas in Missouri that may be affected by emissions from within the state. The progress report asserted that Arkansas was committed to remedying the disapproved portions of the 2008 Arkansas Regional Haze SIP submission. At this time, the Arkansas Regional Haze

NO_x SIP revision,²³ the Arkansas Regional Haze SO₂ and PM SIP revision (if EPA's proposed approval is finalized),²⁴ and the remaining part of the FIP that addresses the BART and associated long-term strategy requirements for Domtar together fully address the deficiencies of the 2008 Arkansas Regional Haze SIP. These deficiencies were previously identified in 2012 by the EPA and acknowledged by ADEQ in its June 2, 2015 progress report SIP. The 2018 Arkansas Regional Haze SO₂ and PM SIP submission provides more recent visibility information in addition to the visibility data presented by ADEQ in the 2015 progress report. The recent data shows visibility improvement that is exceeding the revised visibility goals set for 2018 for the Arkansas Class I areas. Furthermore, up-to-date emission trends indicate that SO₂, NO_x, and PM emissions have all been decreasing. The EPA is, therefore, proposing to approve Arkansas' progress report on the basis that it satisfies the requirements of 40 CFR 51.308(g) and (h), as explained in further detail in each subsequent section.

A. Class I Areas

Arkansas has two Class I areas within its borders that are addressed in the progress report: Upper Buffalo and Caney Creek Wilderness areas.²⁵ Visibility impairment at Arkansas' two Class I areas was tracked in units of deciviews,²⁶ which is related to the cumulative sum of visibility impairment from individual aerosol species as measured by two monitors in the

²³ Final action approved on February 12, 2018 (83 FR 5927).

²⁴ See the EPA's proposed approval on November 30, 2018 (83 FR 62204). We note that in the event this proposed rule is not finalized, there is already FIP in place which addresses the previously identified deficiencies. Thus, regardless of whether the EPA finalizes the proposed approval of the Arkansas Regional Haze SO₂ and PM SIP revision, Arkansas will have an implementation plan in place that fully addresses the regional haze requirements for the first implementation period.

²⁵ Upper Buffalo Wilderness area, located in Newton County, Arkansas, is an oak-hickory forest with intermittent portions of shortleaf pine located in the Ozark National Forest and offers 12,108 acres of boulder strewn and rugged scenery along the Buffalo River. Caney Creek Wilderness is located in Polk County, Arkansas, and covers 14,460 acres on the southern edge of the Ouachita National Forest and protects a rugged portion of the Ouachita Mountains.

²⁶ A deciview is a haze index derived from calculated light extinction, such that uniform changes in haziness correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to highly impaired. The preamble to the Regional Haze Rule provides additional details about the deciview (64 FR 35714, 35725, July 1, 1999).

IMPROVE Network.

Through collaboration with the Central Regional Air Planning Association (CENRAP),²⁷ ADEQ worked with the central states to assess state-by-state contributions to visibility impairment in specific Class I areas in Arkansas and those affected by emissions from Arkansas. ADEQ used CENRAP as the main vehicle for developing its regional haze SIP for the first implementation period. The results reported by ADEQ in the progress report compared available monitored visibility conditions to improvements that were projected based on the technical analysis and emission inventories that were a part of the CENRAP modeling.²⁸ CENRAP generated regional photochemical modeling results, visibility projections, and source apportionment modeling to assist in identifying contributions to visibility impairment at Caney Creek and Upper Buffalo Wilderness Areas in Arkansas. ADEQ also indicated through CENRAP modeling results that two Class I areas outside Arkansas' borders at Hercules Glades and Mingo Wilderness areas in Missouri were impacted by emissions from within Arkansas. In the ensuing sections, we discuss how the State addressed the progress report requirements under 40 CFR 51.308(g) and (h) for these Class I areas, and we show our analysis and proposed determination as to whether the State satisfied the requirements.

B. Status of Implementation of Measures

The State evaluated the status of implementation of all measures in its 2008 Arkansas

²⁷ The CENRAP is a collaborative effort of tribal governments, state governments and various federal agencies representing the central states (Texas, Oklahoma, Louisiana, Arkansas, Kansas, Missouri, Nebraska, Iowa, Minnesota; and tribal governments included in these states) that provided technical and policy tools for the central states and tribes to comply with the EPA's Regional Haze regulations. Due to lack of funding, CENRAP subsequently ceased to function and Arkansas is communicating through the Central States Air Resource Agencies (CenSARA) with the other states that were part of CENRAP.

²⁸ See the technical support document (TSD) for CENRAP Emissions and Air Quality Modeling to Support Regional Haze State Implementation, found in Appendix 8.1 of the 2008 Arkansas Regional Haze SIP. The TSD can be found in the docket for the proposal at <http://www.regulations.gov>. The docket number is EPA-R06-OAR-2008-0727.

Regional Haze SIP in accordance with the requirements under 40 CFR 51.308(g).²⁹ These measures were designed to address sulfate, particulate organic matter, and nitrate, which are the three largest contributors³⁰ to visibility impairment at Upper Buffalo and Caney Creek Wilderness areas. Ammonium sulfate is primarily from SO₂ precursor emissions from EGU point sources;³¹ nitrate is primarily from mobile and point sources emissions; and particulate organic matter is from area sources, particularly emissions from fires.³² The major measures identified in the 2008 Arkansas Regional Haze SIP to control these pollutants and listed in the progress report are as follows:

- BART Controls
- Clean Air Interstate Rule (CAIR) and CSAPR
- Source Retirement and Replacement Schedules
- Agriculture and Forestry Smoke Management
- Additional Federal Programs

1. BART Controls

²⁹ The progress report was not required to include information on the status of implementation of measures that became part of the implementation plan after the submission of the progress report. However, the EPA is including a discussion of measures from the recent SIP submittals to complement the progress report and to provide up-to-date information since the progress report's submission in 2015. Concerning the aspects of the 2008 Arkansas Regional Haze SIP that had been disapproved by the EPA in 2012 before the 2015 submission of the progress report, none involved new SIP measures with compliance deadlines prior to the submission of the progress report. Thus, our 2012 disapprovals do not necessarily affect the progress report requirement regarding reporting on the status of implementation of measures included in the implementation plan.

³⁰ See Figures 2.1 and 2.2 from the 2015 regional haze progress report (pages 16-17) which shows the 2007 to 2011 five-year averages. The percent contributions of the major haze pollutant contributors for Caney Creek and Upper Buffalo are as follows: (65% and 56%) sulfate, (11% and 16%) nitrate, (15% and 18%) particulate organic matter, 10% attributed to both sites for coarse mass, EC, and soil.

³¹ See Figure 2.3 of the progress report that shows Percent Contribution by Source to SO₂ Emissions in Arkansas for 2011: Non-EGU point sources account for 12 percent SO₂ emissions, fires account for 8 percent, and approximately one percent SO₂ emissions are made up of area and mobile sources (on- and off-road).

³² See progress report SIP revision (page 16).

In the 2008 Arkansas Regional Haze SIP, the State determined that there were eighteen facilities in Arkansas with BART-eligible sources.^{33,34} The State chose to exempt those sources that did not contribute to visibility impairment by performing a source-specific screening analysis using CALPUFF modeling. After eliminating BART-eligible sources whose modeled contributions to visibility impairment were below the 0.5 dv threshold limit, nine boiler units from six different facilities were found to be subject-to-BART³⁵ and are reflected in Table 2.2 of the progress report.³⁶ In addition to these subject-to-BART units determined by the State in the 2008 Arkansas Regional Haze SIP, the progress report also included additional units from Georgia-Pacific Paper. As discussed in section I.B of this proposed action, the BART portion of the 2008 Arkansas Regional Haze SIP was partially approved and partially disapproved in our 2012 final action.³⁷ We approved Arkansas' identification of BART-eligible sources from the 2008 Arkansas Regional Haze SIP with the exception of Georgia-Pacific's 6A Boiler, which we found to be BART-eligible, instead of being excluded as stated by the State in the 2008 Arkansas Regional Haze SIP. The EPA also approved the State's identification of subject-to-BART sources, with the exception of the 6A and 9A Boilers at Georgia-Pacific, which we found to be subject-to-BART instead of exempt.³⁸ Because of this, the progress report included Georgia-Pacific's 6A and 9A Boilers as subject-to-BART at the time of its submittal in 2015. However, despite the EPA's previous disapproval of ADEQ's exemption finding, following the company's recent submission of additional technical information and analyses, the EPA ultimately agreed

³³ BART-eligible sources include certain categories of existing major stationary sources built between August 7, 1962 and August 7, 1977 and have potential emissions greater than 250 tons per year (tpy). See 40 CFR 51 Appendix Y, II. How to Identify BART-eligible Sources.

³⁴ See Table 9.1 of the 2008 Arkansas Regional Haze SIP (page 45).

³⁵ See Table 9.2 and Figure 9.2 of the 2008 Arkansas Regional Haze SIP (page 48).

³⁶ See Arkansas Regional Haze Progress Report (page 20).

³⁷ See the final action at 77 FR 14604, March 12, 2012.

³⁸ See 77 FR 14606.

that Georgia Pacific's 6A and 9A Power Boilers are BART-eligible, but are not subject-to-BART. ADEQ provided documentation supporting this determination in Appendix A of the 2018 Arkansas Regional Haze SO₂ and PM SIP revision that the EPA proposed for approval on November 30, 2018. Therefore, the State's most recent identification of subject-to-BART units in the Arkansas Regional Haze SO₂ and PM SIP revision is the same as originally presented in the 2008 Arkansas Regional Haze SIP (see Table 1):

Table 1: Subject-to-BART units in Arkansas

Facility	Unit ID
SWEPCO Flint Creek Plant	Unit 1 Boiler
Arkansas Electric Cooperative Corporation-Bailey Generating Station	Unit 1 Boiler
Arkansas Electric Cooperative Corporation-John L. McClellan Generating Station	Unit 1 Boiler
Entergy Lake Catherine Plant	Unit 4 Boiler
Entergy White Bluff Plant	Unit 1 Boiler
	Unit 2 Boiler
	Auxiliary Boiler
Domtar-Ashdown Mill	No. 1 Power Boiler
	No. 2 Power Boiler

ADEQ was unable to determine at the time of the progress report's submission when revisions to the 2012 disapproved portions of the SIP would be submitted to the EPA. ADEQ was working then with facilities and the EPA to develop the required five-factor analyses to address the disapproved BART determinations. Consequently, updated BART determinations and emission limits were not listed in the progress report by the State because they were not yet available. The BART determinations that were approved in 2012 were findings that the existing limitations met the BART requirements. Therefore, as of the submittal date of the progress report, there were not any new emission reductions from subject-to-BART sources in Arkansas due to implementation of BART limits more stringent than the existing limits. Accordingly, there were no required efforts to implement new measures on which the progress report was required

to provide information. The EPA approved the following BART determinations in 2012 for the 2008 Arkansas Regional Haze SIP: PM determination on SWEPCO Flint Creek Plant Boiler No. 1; SO₂ and PM determinations for the natural gas firing scenario for Entergy Lake Catherine Plant Unit 4; PM determinations for both bituminous and sub-bituminous coal firing scenarios for Entergy White Bluff Plant Units 1 and 2; and PM determination for Domtar Ashdown Mill Power Boiler No. 1.³⁹

Subsequent to the June 2015 progress report submittal, the EPA finalized a FIP in 2016 that established new BART emission limits for the 2012 disapproved determinations.⁴⁰ The FIP established SO₂, NO_x, and PM emission limits under the BART requirements for nine units at six facilities: SO₂, NO_x, and PM BART for AECC Bailey Plant Unit 1 and the AECC McClellan Plant Unit 1; SO₂ and NO_x BART for SWEPCO Flint Creek Plant Boiler No. 1; NO_x BART for the natural gas firing scenario for Entergy Lake Catherine Plant Unit 4;⁴¹ SO₂ and NO_x BART for Entergy White Bluff Plant Units 1 and 2; SO₂, NO_x, and PM BART for Entergy White Bluff Plant Auxiliary Boiler; SO₂ and NO_x BART for Domtar Ashdown Mill Power Boiler No. 1; and SO₂, NO_x and PM BART for Domtar Ashdown Mill Power Boiler No. 2. The FIP also established SO₂ and NO_x emission limits under the reasonable progress requirements for Entergy Independence Units 1 and 2.

The State mentioned in the progress report that it was committed to correcting the 2012 disapproved portions of the 2008 Arkansas Regional Haze SIP. As described below and elsewhere, the State has made two submissions to fulfill this commitment. Each SIP revision

³⁹ See Tables 4 and 5 from the proposal at 40 CFR 64186, 64210-64211 (October 17, 2011).

⁴⁰ See final action on September 27, 2016 (81 FR 66332) as corrected on October 4, 2016 (81 FR 68319).

⁴¹ The 2012 action had disapproved SO₂, NO_x, and PM BART for the fuel oil firing scenario for the Entergy Lake Catherine Plant Unit 4, but a FIP BART determination was not established. Instead, Entergy committed to not burn fuel oil at Lake Catherine Unit 4 until final EPA approval of BART for SO₂ and PM for the fuel oil firing scenario. This commitment has now been made enforceable by the State through an Administrative Order that has been adopted and incorporated in the Arkansas Regional Haze SO₂ and PM SIP revision.

contained updated BART determinations intended to replace the applicable FIP established limits from 2016.

First, on February 12, 2018, the EPA approved the 2017 Arkansas Regional Haze NO_x SIP revision.⁴² That submittal addressed the NO_x BART determinations established in the FIP for the Arkansas subject-to-BART EGUs by replacing them with reliance upon the CSAPR emissions trading program for O₃ season NO_x as an alternative to source-specific NO_x BART. The Arkansas Regional Haze NO_x SIP revision also established that no new NO_x emission controls were required beyond participation in CSAPR for O₃ season NO_x for any source to achieve reasonable progress for the first implementation period.

Second, on August 8, 2018, the State submitted the Arkansas Regional Haze SO₂ and PM SIP revision. That submittal addressed all remaining disapproved parts of the 2008 Arkansas Regional Haze SIP, with exception of the BART and associated long-term strategy requirements for the Domtar Ashdown Mill Power Boilers No. 1 and 2. The majority of the BART determinations in that SIP revision were essentially identical to the BART determinations in the FIP except for different BART requirements for White Bluff units 1 and 2.⁴³ The submittal established that each White Bluff unit was to comply with an updated SO₂ BART emission limit of 0.60 lb/MMBtu. That is based on the use of low sulfur coal and an enforceable commitment to cease coal combustion by the end of 2028. The submittal also established a new NO_x emission limit of 32.2 pounds per hour (pph) to satisfy NO_x BART for White Bluff's auxiliary boiler, replacing the determination in the Arkansas Regional NO_x SIP revision (relying upon CSAPR to

⁴² See final action on February 12, 2018 for the Arkansas Regional Haze NO_x SIP revision (83 FR 5927).

⁴³ For the White Bluff units, the FIP required an SO₂ emission limit of 0.06 lb/MMBtu with a five-year compliance date, based on the installation of dry scrubbers. The Arkansas Regional Haze SO₂ and PM SIP revision does not require the SO₂ emission limit of 0.06 lb/MMBtu, but it does require that Entergy move forward with its announced plans to cease coal combustion at the White Bluff Units by 2028 and to meet an SO₂ emission limit of 0.60 lb/MMBtu in the interim. Once the units cease coal combustion, SO₂ emissions are expected to significantly decrease.

satisfy NO_x BART) that we previously approved. The State made all of these BART determinations enforceable through administrative orders.⁴⁴ The State determined that no additional SO₂ or PM controls beyond BART were necessary for reasonable progress during the first planning period.⁴⁵ The EPA proposed to approve a large portion of the SIP revision on November 30, 2018.⁴⁶

The Arkansas Regional Haze NO_x SIP revision,⁴⁷ the Arkansas Regional Haze SO₂ and PM SIP revision (if EPA's proposed approval is finalized),⁴⁸ and the remaining part of the FIP that addresses the BART and associated long-term strategy requirements for Domtar together fully address the deficiencies of the 2008 Arkansas Regional Haze SIP previously identified in 2012 by the EPA. The EPA is collectively providing all of these updated BART determination emission limits in Table 2 below since they were not all available at the time of the progress report's submission.

Table 2: Updated BART Determinations

Facility	Unit	BART Emission Limit		
		SO ₂	NO _x	PM ₁₀
SWEPCO Flint Creek Plant	Unit 1 Boiler	0.06 lb/MMBtu**	Reliance on Participation in CSAPR Trading Program for O ₃	0.1 lb/MMBtu*
Arkansas Electric Cooperative	Unit 1 Boiler	Use fuel with sulfur limit of		Use fuel with sulfur limit of

⁴⁴ The Administrative Orders can be found in the Arkansas Regional Haze SO₂ and PM BART SIP Revision.

⁴⁵ In the Arkansas Regional Haze SO₂ and PM SIP revision, part of ADEQ's basis for determining the sources to further evaluate under the four reasonable progress factors was analyses and determinations for whether sources were subject-to-BART in the first implementation period. For the Domtar facility in particular, the State relied on the fact that a FIP is in place to address the BART requirements. In our November 30, 2018 proposed approval (83 FR 62204), we proposed to agree that this is an appropriate basis on which we find that nothing further is needed for reasonable progress at this source. If ADEQ chooses to submit a future SIP revision to address BART requirements for Domtar Power Boilers No. 1 and No. 2, we will evaluate the SIP submittal at that time and also whether it addresses reasonable progress requirements.

⁴⁶ See proposed action on November 30, 2018 for the Arkansas Regional Haze SO₂ and PM SIP revision (83 FR 62204). Note that the SIP revision also addressed separate CAA requirements related to interstate visibility transport under CAA section 110(a)(2)(D)(i)(II), but we did not propose action on that part of the submittal.

⁴⁷ Final action approved on February 12, 2018 for the Arkansas Regional Haze NO_x SIP revision (83 FR 5927).

⁴⁸ In the event that this proposed rule is not finalized, we note that there is already a FIP in place which addresses the previously identified deficiencies.

Corporation-Bailey Generating Station		0.5% by weight**	season NO _x to satisfy NO _x BART ^a	0.5% by weight**
Arkansas Electric Cooperative Corporation-John L. McClellan Generating Station	Unit 1 Boiler	Use fuel with sulfur limit of 0.5% by weight**		Use fuel with sulfur limit of 0.5% by weight**
Entergy-Lake Catherine	Unit 4 Boiler ^b	(Natural gas firing scenario) Burn natural gas only*		(Natural gas firing scenario) 45 pph and burn natural gas only*
Entergy-White Bluff	Unit 1 Boiler	0.60 lb/MMBtu†		0.1 lb/MMBtu*
	Unit 2 Boiler	0.60 lb/MMBtu†		0.1 lb/MMBtu*
	Auxiliary Boiler	105.2 pph**	32.2 pph***	4.5 pph**
Domtar-Ashdown Mill	No. 1 Power Boiler	504 pph‡	207.4 pph‡	0.07 lb/MMBtu*
	No. 2 Power Boiler	91.5 pph‡	345 pph‡	PM standard under 40 CFR part 63, subpart DDDDD as revised‡

*The EPA approved this BART limit in the March 12, 2012 final action (77 FR 14604).

**This BART limit established in the FIP will be replaced with the State's own identical limit pending final approval of the August 8, 2018 Arkansas Regional Haze SO₂ and PM SIP revision. See the EPA's proposed approval on November 30, 2018 (83 FR 62204).

***Note that we previously withdrew the 32.2 pph NO_x limit from the FIP and approved Arkansas' reliance upon CSAPR to satisfy NO_x BART (83 FR 5927). However, ADEQ's identification of the Auxiliary Boiler as participating in CSAPR for O₃ season NO_x was in error. Therefore, we proposed to withdraw our prior approved determination of the State's reliance upon CSAPR and replace it with 32.2 pph NO_x to satisfy NO_x BART for the auxiliary boiler in our proposed approval of the Arkansas Regional Haze SO₂ and PM SIP revision. See the EPA's proposed approval of the Arkansas Regional Haze SO₂ and PM SIP revision on November 30, 2018 (83 FR 62204).

† This is a new revised BART limit proposed in the August 8, 2018 Arkansas Regional Haze SO₂ and PM SIP revision. See the EPA's proposed approval on November 30, 2018 (83 FR 62204).

‡The EPA established this FIP BART limit on September 27, 2016. See final action (81 FR 66332) as corrected on October 4, 2016 (81 FR 68319).

^a The EPA approved this BART alternative in the February 12, 2018 Arkansas Regional Haze NO_x SIP Revision final action (83 FR 5927).

^b There is an enforceable ban (not a current BART Determination) by the State on burning fuel oil for Lake Catherine's unit 4 boiler until the EPA approves a SIP revision with BART determinations for the fuel oil firing scenario.

2. Reasonable Progress Source Controls

In the Arkansas Regional Haze NO_x SIP revision and the Arkansas Regional Haze SO₂

and PM SIP revision, ADEQ evaluated the need for additional source controls under the reasonable progress requirements. In determining reasonable progress, CAA section 169(A)(g)(1) requires states to examine the cost of compliance, the time necessary for compliance, energy and non-air quality environmental impacts, and remaining useful life. In the Arkansas Regional Haze NO_x SIP revision, the State determined that no additional NO_x controls beyond participation in CSAPR for O₃ season NO_x were necessary to satisfy the reasonable progress requirement with respect to NO_x for the first implementation period.⁴⁹ As discussed in Section II of our proposed action on the Arkansas Regional Haze SO₂ and PM SIP revision, ADEQ determined that no additional SO₂ and PM controls at Independence Units 1 and 2 or any other Arkansas sources are necessary under reasonable progress for the first implementation period.⁵⁰

3. CAIR and CSAPR

In 2005, the EPA issued CAIR,⁵¹ which participating states could rely on in lieu of BART for EGUs.⁵² CAIR was designed to address power plant pollution transported from one state to another via a cap-and-trade system to reduce SO₂ and NO_x emissions as the target pollutants.⁵³ In December 2008, the D.C. Circuit remanded CAIR to the EPA, leaving existing CAIR programs in place while directing the EPA to replace them with a new rule.⁵⁴ Although CAIR was remanded, CAIR remained in effect at the time of the progress report's development

⁴⁹ The EPA approved this in the February 12, 2018 Arkansas Regional Haze NO_x SIP Revision final action (83 FR 5927).

⁵⁰ See the EPA's proposed approval of the Arkansas Regional Haze SO₂ and PM SIP revision on November 30, 2018 (83 FR 62204).

⁵¹ See 70 FR 25161 (May 12, 2005).

⁵² See 70 FR 39104, 39139 (July 6, 2005).

⁵³ Although Arkansas was subject to certain NO_x requirements of CAIR, including the statewide O₃ season NO_x budget, it elected not to rely on CAIR in its 2008 Arkansas Regional Haze SIP to satisfy the NO_x BART requirement for its EGUs. Note that it would have been sufficient for Arkansas to rely on CAIR to satisfy NO_x BART.

⁵⁴ *North Carolina v. EPA*, 531 F.3d 896, 901 (D.C. Cir. 2008), *modified*, 550 F.3d 1176, 1178 (D.C. Cir. 2008).

and sources in Arkansas continued to comply with the state and federal requirements associated with CAIR. CAIR consisted of two phases of reductions for NO_x and SO₂. Phase I ran from 2009 to 2014 and Arkansas' NO_x budget amounted to 11,514 tons NO_x per annual O₃ season. Phase II began in 2015 and was set to continue indefinitely with Arkansas' NO_x budget set at 9,116 tons NO_x per annual O₃ season. Table 2.3 of the progress report shows the NO_x O₃ season allocations distributed among the different Arkansas sources for the 2009 to 2017 time-period.

In 2011, the EPA finalized CSAPR to replace CAIR.⁵⁵ In 2012, the EPA published a final rule allowing states that participate in the CSAPR trading program to rely on CSAPR to satisfy BART for EGUs,⁵⁶ including states participating only for O₃ season NO_x.⁵⁷ CSAPR requires 28 eastern states to reduce power plant emissions that contribute to O₃ and PM_{2.5} pollution in other states. The rule requires reductions in O₃ season NO_x emissions that cross state lines for certain states under the O₃ requirements, and reductions in annual SO₂ and NO_x emissions for certain states under the PM_{2.5} requirements. The EPA set emission budgets for each state covered by CSAPR. Allowances are allocated to affected sources based on these state emission budgets.⁵⁸

Since promulgating the use of CSAPR as an alternative to source-specific BART for EGUs, the EPA has promulgated an update to the CSAPR program with more stringent budgets.⁵⁹ The CSAPR update revised the O₃ season NO_x budget for Arkansas EGUs from 15,110 tons NO_x in 2015 to 12,048 tons NO_x (10,132 tons NO_x allocated to existing EGUs) in 2017 with a further reduction to 9,210 tons NO_x (7,781 tons NO_x allocated to existing EGUs) in

⁵⁵ See 76 FR 48207 (August 8, 2011).

⁵⁶ See 77 FR 33642 (June 7, 2012).

⁵⁷ Arkansas EGUs are covered under CSAPR for O₃ season NO_x. See 76 FR 82219 (December 30, 2011).

⁵⁸ The rule provides flexibility to affected sources, allowing sources in each state to determine their own compliance path. This includes adding or operating control technologies, upgrading or improving controls, switching fuels, and using allowances. Sources can buy and sell allowances and bank (save) allowances for future use as long as each source holds enough allowances to account for its emissions by the end of the compliance period.

⁵⁹ See 81 FR 74504. On October 26, 2016, we finalized an update to CSAPR that addresses the 1997 O₃ NAAQS portion of the remand as well as the CAA requirements addressing interstate transport for the 2008 O₃ NAAQS.

2018 and beyond.⁶⁰ Participation in CSAPR for O₃ season NO_x is federally enforceable under 40 CFR 52.38.

On February 12, 2018, we approved the Arkansas Regional Haze NO_x SIP revision (effective March 14, 2018) which replaced all source-specific NO_x BART determinations for EGUs established in the FIP with reliance upon the CSAPR emissions trading program for O₃ season NO_x as an alternative to NO_x BART.⁶¹ The O₃ season NO_x requirements under CSAPR apply to all subject-to-BART units in Table 1 of this proposed action except the Domtar No. 1 and 2 Power Boilers, and the White Bluff Auxiliary Boiler. The Arkansas Regional Haze NO_x SIP revision addressed the NO_x BART requirements for Bailey Unit 1, McClellan Unit 1, Flint Creek Boiler No. 1, Lake Catherine Unit 4; White Bluff Units 1 and 2, and the Auxiliary Boiler. In that SIP submittal, ADEQ erroneously identified White Bluff's Auxiliary Boiler as participating in CSAPR for O₃ season NO_x and elected to rely on participation in that trading program to satisfy the Auxiliary Boiler's NO_x BART requirements. Although we approved the SIP submittal on February 12, 2018,⁶² our approval of the State's reliance on CSAPR for O₃ season NO_x to satisfy the BART requirements for the Auxiliary Boiler was made in error. Therefore, we proposed to withdraw our approval of the State's reliance upon CSAPR for the Auxiliary Boiler and replace it with our approval of a source-specific 32.2 pph NO_x BART emission limit related to the Arkansas Regional Haze SO₂ and PM SIP submitted on November 30, 2018.⁶³

⁶⁰ CSAPR has been subject to extensive litigation, and on July 28, 2015, the DC Circuit issued a decision generally upholding CSAPR but remanding without vacating the CSAPR emissions budgets for a number of states. Arkansas' O₃ season NO_x budgets were not included in the remand. *EME Homer City Generation v. EPA*, 795 F.3d 118, 138 (DC Cir. 2015).

⁶¹ See 82 FR 42627 (September 11, 2017) for the proposed approval. See also 83 FR 5927 and 83 FR 5915 (February 12, 2018) for the final action.

⁶² See 83 FR 5927 (February 12, 2018).

⁶³ See the EPA's proposed approval on November 30, 2018 (83 FR 62204).

4. Source Retirement and Replacement Schedules

In accordance with Subchapter 11.4.1.6 of the 2008 Arkansas Regional Haze SIP, ADEQ tracked source retirement and replacement through ongoing point source inventories.^{64,65} The progress report showed that ADEQ has performed this tracking. Five new permitted Prevention of Significant Deterioration (PSD) facilities were inventoried and the new corresponding total potential-to-emit (PTE) emissions for NO_x and SO₂ were reported at 5,833 tpy and 7,374 tpy. The total actual NO_x and SO₂ emissions,⁶⁶ however, were reported lower at 1,741 tpy and 3,303 tpy, respectively. In addition, sixteen PSD facilities have shut down since 2008, resulting in a total reduction of 15,893 tpy in permitted NO_x emissions and a total reduction of 1,126 tpy in permitted SO₂ emissions.⁶⁷

5. Agriculture and Forestry Smoke Management⁶⁸

The progress report mentioned that the State is currently relying on a Smoke Management Plan (SMP) in its 2008 Arkansas Regional Haze SIP that the Arkansas Forestry Commission approved in 2007. Arkansas' SMP was designed to assure that prescribed fires are planned and executed in a manner designed to minimize the impacts from smoke produced by prescribed fires. The programs in this measure are generally designed to limit increases in emissions, rather than to reduce existing emissions.⁶⁹

⁶⁴ 40 CFR 51.308(d)(3)(v)(D) requires the State of Arkansas to consider source retirement and replacement schedules in developing RPGs.

⁶⁵ 40 CFR 51.308(d)(3)(v)(B) requires the State of Arkansas to consider measures to mitigate the impacts of construction activities.

⁶⁶ As reported by the facilities in their Annual Emissions Inventory Report for 2012.

⁶⁷ See Tables 2.4 through 2.6 of the progress report.

⁶⁸ 40 CFR 51.308(d)(3)(v)(E) requires Arkansas to consider smoke management techniques for the purposes of agricultural and forestry management.

⁶⁹ Documentation of this SMP program is in Appendix 11.1 of the 2008 Arkansas Regional Haze SIP or a copy may be found at <http://forestry.arkansas.gov/Services/KidsTeachersEveryone/Documents/ArkansasVSMG.pdf>.

6. Additional Federal Programs⁷⁰

The State of Arkansas also considered in its progress report the following ongoing pollution control programs in the 2008 Arkansas Regional Haze SIP as controls used for continuing emission reductions:

- Mercury and Air Toxics Standard (MATS)⁷¹
- Tier 2 Vehicle Emission standards⁷²
- Heavy-Duty Highway Rule.⁷³
- Highway Diesel and Non-Road Diesel Rules.⁷⁴
- Ultra-Low Sulfur Diesel Rule⁷⁵
- Maximum Achievable Control Technology (MACT)⁷⁶

⁷⁰ 40 CFR 51.308(d)(3)(v)(A) requires the State of Arkansas to consider emission reductions from ongoing pollution control programs in the development of its long-term strategy.

⁷¹ See 77 FR 9304 (February 16, 2012). Arkansas anticipated that reductions in SO₂ emissions from the State's coal-fired EGUs would occur as a result of the MATS rule. This rule allowed for the installation of pollution control equipment to meet requirements under 40 CFR part 63, Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units. At the time the progress report was submitted, Flint Creek planned to install a particular type of dry scrubber that controls SO₂ and other acid gases called Novel Integrated Deacidification (NID) technology and Activated Carbon Injection (ACI) to comply with MATS. Since that time, Flint Creek did install the NID system on boiler unit 1. Because the scrubber system also meets the qualifications as being a BART control, the State is complying with the more stringent SO₂ BART requirements included in the FIP and is meeting both rules using the same controls. The SO₂ BART emission rate, therefore, was set at 0.06 lb/MMBtu based on the installation and operation of the NID technology.

⁷² EPA's Tier 2 fleet averaging program for on-road vehicles, modeled after the California LEV (Low Emissions Vehicle) II standards, became effective in the 2005 model year. The mix of vehicles a manufacturer sells each year must have average NO_x emissions below a specified value.

⁷³ The Heavy-Duty Highway Rule was adopted on January 18, 2001, by EPA with the objective of reducing emissions from diesel engines by setting a PM emission standard for new heavy-duty engines, which took effect with the 2007 model year. The rule also required reduction of sulfur in diesel fuel to facilitate the use of modern pollution control technology on these engines.

⁷⁴ These rules were initially effective in 2004 and were fully phased in by 2012. The non-road diesel rule set standards that reduced emissions by more than 90 percent from non-road diesel equipment and, beginning in 2007, the rule reduced fuel sulfur levels by 99 percent from previous levels. The reduction in fuel sulfur levels applied to most non-road diesel fuel in 2010 and applied to fuel used in locomotives and marine vessels in 2012.

⁷⁵ The Ultra-Low Sulfur Diesel Rule resulted in better PM control from diesel engines. The EPA regulations required that at least 80 percent of highway diesel fuel in the United States be ULSD, and by 2010, all highway diesel fuel became ULSD. The EPA also required a major reduction in the sulfur content of diesel fuel intended for use in locomotive, marine, and non-road engines and equipment including construction, agricultural, industrial, and airport equipment.

⁷⁶ The MACT standards are part of the National Emission Standards for Hazardous Air Pollutants (NESHAP), provided under 40 CFR part 63. See 76 FR 64186, 64198 and 70 FR 39162. CENRAP modeling demonstrated that VOCs from anthropogenic sources are not significant visibility-impairing pollutants at Caney Creek and Upper Buffalo.

7. EPA's Conclusion on the Status of Implementation of Measures

The EPA proposes to find that the State has adequately addressed the applicable provisions under 40 CFR 51.308(g) regarding reporting the status of implementation of measures in its implementation plan. The State's progress report documented the status of all measures included in its regional haze SIP (as of the submission of the progress report) and it also described additional measures that came into effect since the State's 2008 regional haze SIP was completed, including state regulations and various federal measures. All major control measures were identified and the strategy behind each control was explained. The State included a summary of the implementation status associated with each measure and quantified the benefits where possible. In addition, the progress report SIP adequately outlined the compliance timeframe for all controls.

C. Emission Reductions from Implementation of Measures

The State presented emission data in its progress report that provided a summary of the emission trends and reductions achieved in the state through the implementation of the measures in the SIP. The State identified ammonium sulfate, particulate organic matter, and nitrate as the three largest pollutant contributors to visibility impairment caused by regional haze at Arkansas' Class I areas for the first implementation period.⁷⁷ The progress report indicated that the primary cause of ammonium sulfate, the most significant haze contributor in Arkansas, is SO₂ precursor emissions. In 2011, point sources contributed to 90 percent of the overall SO₂ emissions in Arkansas with EGUs responsible for 78 percent of the total SO₂ emissions.⁷⁸ For this reason, the

⁷⁷ See Figures 2.1 and 2.2 from the 2015 regional haze progress report (page 17). The percent contributions (2007-2011) of the major haze pollutant contributors for Caney Creek and Upper Buffalo are as follows: (65% and 56%) sulfate, (11% and 16%) nitrate, (15% and 18%) particulate organic matter, 10% attributed to both sites for coarse mass, EC, and soil.

⁷⁸ See the Arkansas progress report (page 18).

State focused on reporting emission reductions from EGU point sources in the progress report as an effective method of improving visibility in Arkansas.

The State reported EGU point source emission data from Arkansas for NO_x and SO₂ for the 2000 to 2011 time-period.⁷⁹ There were not any emission reductions from subject-to-BART sources in Arkansas due to implementation of BART limits when the progress report was submitted. Nevertheless, the overall EGU emissions trended downward from the baseline for NO_x, with a slight uptick in 2011 for SO₂ emissions. Arkansas noted that as of 2011, EGU emissions increased by 2,885 tpy for SO₂ and decreased by 3,741 tpy for NO_x from the 2002 baseline. During the 2002 to 2011 time-span, on a heat input basis, both NO_x and SO₂ EGU emission rates (lb/MMBtu) decreased. This indicates that the overall average control efficiencies improved and the slight SO₂ emissions uptick was a result of increased EGU activity.⁸⁰

Table 3 below, provided by the EPA to complement the State's report, compares more recent emission trends going past 2011.⁸¹ It compares the 2002 to 2011 annual EGU emission trends provided by the State in the progress report to more recent annual EGU emission data provided by the EPA from 2012 to 2017.⁸² Table 3 shows that NO_x and SO₂ EGU point source emissions have decreased during the 2011 to 2017 time-period. Comparing 2011 emissions to the 2018 projected emissions developed for the 2008 SIP, the State projected annual SO₂ emissions to increase by an additional 125 tpy and annual NO_x emissions to decrease by an additional 10,167 tpy in 2018 from 2011 observed emissions.⁸³ The more recent emission data, however, shows a large decrease in SO₂ emissions from EGUs. Specifically, from 2014 to 2015,

⁷⁹ See Table 3.1 in the Arkansas progress report (page 35).

⁸⁰ See Figure 3.2 in the Arkansas progress report (page 38).

⁸¹ Source: U.S. EPA Clean Air Market Division www.epa.gov/airmarkt/.

⁸² Source: U.S. EPA Clean Air Market Division www.epa.gov/airmarkt/.

⁸³ See Page 37 of the progress report.

there was a 30,354 tpy decrease in SO₂ emissions and a 14,783 tpy decrease in NO_x emissions.

This corresponds to a decline in EGU activity as noted by the decrease in heat input in 2015.

EGU activity has since increased from 2015 to 2017, but the emissions remain well below 2014 emission levels. Overall, from the 2002 to 2017, SO₂ emissions from EGUs have reduced by 22,969 tpy (increased 2,885 tpy from 2002 to 2011, then decreased 25,854 tpy from 2011 to 2017) and NO_x emissions have reduced by 14,579 tpy (decreased 3,741 tpy from 2002 to 2011, then decreased an additional 10,838 tpy from 2011 to 2017). The State's progress report mentioned that further significant emission reductions would be realized from a final permit that was issued on August 25, 2013, at Flint Creek for the installation and operation of control equipment to significantly reduce SO₂ emissions.⁸⁴

Table 3: Annual NO_x and SO₂ Emissions from EGU Point Sources in Arkansas

Year	NO _x (tpy)	SO ₂ (tpy)	Heat Input (MMBtu)	NO _x Emission Rate (lb/MMBtu)	SO ₂ Emission Rate (lb/MMBtu)
2002	42,079	70,738	303,031,688	0.278	0.467
2005	35,333	66,190	305,909,694	0.231	0.433
2008	37,800	73,289	339,622,527	0.223	0.432
2011	38,338	73,623	411,725,177	0.186	0.358
2012*	34,847	76,326	440,336,753	0.158	0.347
2013*	37,148	73,578	427,915,347	0.174	0.344
2014*	38,396	75,898	410,742,039	0.187	0.370
2015*	23,613	45,544	337,259,867	0.140	0.270
2016*	26,892	46,573	382,621,452	0.141	0.243
2017*	27,500	47,769	391,814,298	0.140	0.244

*Provided by the EPA from the EIS Gateway database.

Table 4, provided by the EPA, compares National Emissions Inventory (NEI) data for total point sources from 2002 to 2014. This complements the categorized NEI point source data

⁸⁴ See ADEQ Air Permit No. 027-AOP-R6 (AFIN 04-00107). This permit allowed for the installation of pollution control equipment under the MATS rule with an SO₂ emission limit of 0.2 lb/MMBtu, and a compliance date of April 16, 2016. Since the issuance of that permit, ADEQ has submitted the Arkansas Regional Haze SO₂ and PM SIP revision, which establishes an SO₂ BART emission limit of 0.06 lb/MMBtu, achievable by the equipment installed to meet MATS. The SIP revision requires compliance with the 0.06 lb/MMBtu SO₂ emission limit by "the effective date of the Administrative Order," which requires compliance by August 7, 2018.

(EGU and non-EGU) inventoried by the State in the progress report from 2002 to 2011. It also provides reported emissions data from more current NEI versions than available when the progress report was submitted in 2015.⁸⁵ Table 4 shows that fine particle and coarse mass PM emission reductions are considerably lower than their NEI 2002 totals when compared to more recent NEI data.⁸⁶ PM₁₀ point source emissions decreased by 6,427 tpy (39%) and PM_{2.5} point source emissions decreased by 5,600 tpy (49%) for the 2002 to 2014 period. NO_x emissions stayed relatively steady at 71,000 tpy and SO₂ emissions decreased slightly by 4.6 percent for the 2002 to 2014 period. Although the reductions in SO₂ and NO_x emissions are not especially pronounced for that time-period, the total point source emission trends are consistent with what is shown in Table 3 for EGU point sources from 2002 to 2014. We anticipate that the total NEI point source data going forward after 2014 will reflect the substantial decreases in PM, SO₂, and NO_x emissions as already displayed in the EGU point source reductions reported by CAMD data in Table 3.

Table 4: NEI Total Point Source Emission Data for Arkansas for 2002-2014

Year	NO _x (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
2002	70,726	89,870	16,318	11,536
2005	59,431	75,483	8,532	6,105
2008	75,045	87,308	11,060	7,671
2011	71,402	84,922	10,451	6,782
2014	71,588	85,714	9,891	5,936

In addition to the above reductions, there will also be some additional future reductions due to more stringent CSAPR allocations and BART requirements implemented from the recent Arkansas Regional Haze SO₂ and PM SIP revision. The CSAPR update revised the O₃ season NO_x budget for Arkansas units from 15,110 tons NO_x in 2015 to 12,048 tons NO_x (10,132 tons

⁸⁵ The State noted that NEI emissions data for 2011 in the progress report was obtained from 2011 NEI version 1.

⁸⁶ As reported in the online EPA Emissions Inventory System (EIS) Gateway database for point sources only.

NO_x allocated to existing EGUs) in 2017 with a further reduction to 9,210 tons NO_x (7,781 tons NO_x allocated to existing EGUs) in 2018 and beyond. The 2017 actual O₃ season EGU emissions for Arkansas totaled 12,811 tons NO_x. Some EGUs chose to install combustion controls to comply with CSAPR that would reduce emissions year-round, not just in the O₃ season. This includes the installation of low NO_x burners at the White Bluff and Independence facilities. The 2018 actual O₃ season EGU emissions for Arkansas totaled 10,952 tons NO_x.⁸⁷

The State noted that, along with the replacement of CAIR with CSAPR, there have been many changes to the ongoing air pollution programs since EPA's partial approval of Arkansas' regional haze SIP in 2012. These changes included more stringent emission standards, renewable fuel standards, fuel efficiency standards, marine and aircraft standards, mercury and air toxics standards, and various national emission standards for hazardous air pollution. Arkansas noted that these more recent air pollution programs are anticipated to result in even greater emission reductions that could result in further visibility improvement than the programs in place at the time the 2008 Arkansas Regional Haze SIP revision was submitted to the EPA.

Lastly, recent and planned retirements of various plants may result in further visibility improvement at Arkansas Class I areas. In the Arkansas Regional Haze SO₂ and PM SIP revision, ADEQ noted the planned retirement of Lake Catherine by the end of 2028 and Entergy's plans to cease coal combustion at the Independence facility by the end of 2030. ADEQ also noted that there have been recent changes in operations at large point sources that have historically impacted Arkansas Class I areas, including the recent retirement of the Big Brown Plant, Sandow Plant, Monticello Plant, and the Deely Plant in Texas. The coal-fired units at the Tennessee Valley Authority Allen Plant, located in Memphis, Tennessee, were also scheduled to

⁸⁷ Source: U.S. EPA Clean Air Market Division www.epa.gov/airmarkt/.

retire by June 2018 and be replaced with natural gas generators.

The EPA proposes to conclude that the State has adequately addressed the applicable provisions under 40 CFR 51.308(g) regarding a summary of emission reductions achieved for visibility impairing pollutants. Overall, the State demonstrated the emission reductions achieved for the major contributing visibility impairing pollutants in the State for the first implementation period. Emissions of SO₂, NO_x, and PM, the main contributors to regional haze in Class I areas potentially affected by emissions from Arkansas, have all been decreasing. As demonstrated by the more recent available data, the SO₂ and NO_x haze pollutant precursors from EGU point sources in the state have decreased from the baseline levels in 2002, especially since 2015. Also, the trend for fine particles and coarse mass emissions, pollutants that directly create haze, have been decreasing since 2002. Overall visibility conditions are improving as a result of these reductions together with decreases from outside of the state. With the implementation of the new BART controls and more stringent NO_x allocations under CSAPR, further emission reductions should be realized and visibility impairment at affected Class I areas should continue to improve.

D. Visibility Conditions and Changes

Arkansas included in its progress report the annual average visibility from 2001 to 2011 for the twenty percent best (least impaired) and twenty percent worst (most impaired) days at Caney Creek and Upper Buffalo Wilderness areas.⁸⁸ Although visibility conditions have varied from year-to-year, the progress report showed that both Caney Creek and Upper Buffalo have displayed an overall improvement in visibility since 2001.⁸⁹ Arkansas reported that both areas

⁸⁸ The *most and least impaired days* in the regional haze rule refers to the average visibility impairment (measured in dv) for the twenty percent of monitored days in a calendar year with the highest and lowest amount of visibility impairment, respectively, averaged over a five-year period (see 40 CFR 51.301). In this report, when we refer to “best days” we mean “least impaired” and when we refer to “worst days” we mean “most impaired.”

⁸⁹ See Figures 4.1 to 4.2 and Tables 4.1 to 4.2 of the progress report (pages 41-43).

showed improved visibility from the 2000 to 2004 baseline during the worst days for the most current period (2007 to 2011) and for the period previous to the most current (2005 to 2009) available at the time of the progress report's development.⁹⁰ Both class I areas similarly are showing improvement from the baseline on the twenty percent best days and satisfy the goal of no visibility degradation for the first implementation period. Table 5 shows that the visibilities at Caney Creek and Upper Buffalo during the 2007 to 2011 period were 0.96 dv and 0.67 dv below the baseline for the twenty percent best days.

Table 5: Visibility at Arkansas Class I Areas for the Twenty Percent Best Days (Five-Year Avg.)

Class I Area	Baseline (2000-2004) (dv)	(2005-2009) (dv)	(2007-2011) (dv)	Most Recent Minus Baseline (dv)
Caney Creek Wilderness	11.39	11.06	10.43	-0.96
Upper Buffalo Wilderness	11.71	11.85	11.04	-0.67

*A negative sign indicates a reduction from the baseline

In the State's August 8, 2018 submittal (Arkansas Regional Haze SO₂ and PM SIP), the State's 2018 RPGs from the 2008 Arkansas Regional Haze SIP for Caney Creek and Upper Buffalo were revised downward to 22.47 dv and 22.51 dv for the twenty percent worst days.⁹¹ These revised RPGs are more stringent than what was established in the 2008 Arkansas Regional Haze SIP and account for the controls required in the Arkansas Regional Haze SO₂ and PM SIP submittal.⁹² We proposed to agree with the State's newly revised 2018 RPGs for the twenty percent worst days in our November 30, 2018 proposed approval action.⁹³ The Arkansas Regional Haze SO₂ and PM SIP submittal did not revise the RPG for the twenty percent best

⁹⁰ Progress reports for the first implementation period used specific terms to describe time-periods. "*Baseline visibility conditions*" refers to conditions during the 2000 to 2004 time-period. "*Current visibility conditions*" refers to the most recent five-year average data available at the time the State submitted its progress report for public review. "*Past five years*" refers to the five-year average previous to the five years used for "*current visibility conditions*."

⁹¹ See spreadsheet, *sip-rev-rpg-calcs.xlsx*, provided at <https://www.adeg.state.ar.us/air/planning/sip/regional-haze.aspx>.

⁹² See page 54 of the Arkansas Regional Haze SO₂ and PM SIP revision.

⁹³ See the EPA's proposed approval on November 30, 2018 (83 FR 62204).

days that was included in the 2008 Arkansas Regional Haze SIP.

Table 6 provides more recent monitored visibility data presented by the State in the August 8, 2018 SIP revision for the twenty percent worst days at Caney Creek and Upper Buffalo Wilderness areas.⁹⁴ The observed values exhibit a consistent downward trend in the observations. When comparing the revised 2018 RPGs with the observed five-year visibility trends, Caney Creek and Upper Buffalo are already realizing more visibility improvement than needed to meet the revised 2018 RPGs. Most recently, the visibility conditions at Caney Creek and Upper Buffalo during the 2012 to 2016 period were 1.83 dv and 1.95 dv below the 2018 revised RPGs.

Table 6: Visibility at Arkansas Class I Areas for the Twenty Percent Worst Days (Five-Year Avg.)

Class I Area	Baseline (2000-2004) (dv)	(2005-2009) (dv)	(2007-2011) (dv)	(2009-2013) (dv)	(2012-2016) (dv)	2018 Revised RPGs (dv)
Caney Creek Wilderness	26.36	25.33	23.00	22.22	20.64	22.47
Upper Buffalo Wilderness	26.27	25.86	24.15	22.15	20.56	22.51

The EPA proposes to conclude that the State has adequately addressed the applicable provisions under 40 CFR 51.308(g) with respect to visibility conditions at Arkansas' Class I areas. The State provided five-year average baseline visibility conditions from 2000 to 2004, the five-year average visibility conditions from 2007 to 2011, and the five-year average visibility conditions for 2005 to 2009. The State calculated the change in visibility between the baseline average and the most recent five-year average available (2007 to 2011). The results were tabulated for the twenty percent worst and best days and then compared to the 2018 RPGs to

⁹⁴ See spreadsheet, *visibility-progress.xlsx*, provided at <https://www.adeq.state.ar.us/air/planning/sip/regional-haze.aspx>.

determine the amount of visibility improvement achieved. Caney Creek and Upper Buffalo Wilderness areas have both demonstrated improved visibility for the most impaired and least impaired days since 2001. Based on the five-year rolling averages, both wilderness areas have already exceeded the amount of visibility improvement needed to meet the more stringent revised 2018 RPGs for the twenty percent worst days. Analysis of the visibility data from Caney Creek and Upper Buffalo Wilderness areas also shows that the goal of no visibility degradation on the twenty percent best days has been achieved.

E. Emission Tracking

In its progress report, ADEQ presented categorized NEI emission inventories for 2002, 2005, 2008, and 2011, as well as CENRAP projected inventories for 2018. The pollutants inventoried included SO₂, NO_x, NH₃, VOC, PM_{2.5}, and PM₁₀. The inventories were categorized for all major visibility-impairing pollutants under major anthropogenic source groupings. The anthropogenic source categorization included point and non-point EGUs; on and non-road mobile sources; area sources; fugitive and road dust; fire, and agricultural/biogenic sources. The 2008 and 2011 NEI inventories were the most recent comprehensive inventories of updated actual emissions available at the time the State prepared its progress report. The State, therefore, emphasized those NEI inventories in the progress report and then compared the categorized inventory changes from 2011 to the 2002 baseline emissions.⁹⁵ A summary of the total state NEI emissions from the progress report can be seen below in Table 7 along with more recent complementary data from 2014 provided by the EPA to show emission trends going past 2011.

Table 7: Comparison of Total State NEI Emissions (tpy)

Year	SO ₂	NO _x	NH ₃	VOC	PM _{2.5}	PM ₁₀
2002	126,707	239,487	124,297	228,032	62,505	243,372

⁹⁵ See Table 5.1 (page 46-47) of the progress report.

2005	126,707	239,487	134,156	312,648	108,362	296,149
2008	94,113	247,734	131,710	1,427,040	124,829	443,213
2011	95,123	260,737	132,940	1,643,979	144,191	467,527
2014*	91,033	212,638	76,114	1,625,837	119,957	369,682

*Provided by the EPA from the EIS gateway database

The NEI emissions increased from 2002 to 2011 except for SO₂ emissions. The State explained in the progress report that the total SO₂ emissions decreased as a result of phasing in low sulfur (500 ppm) Ultra-Low Sulfur Diesel fuels for nonroad, locomotive, and marine engines beginning in 2007. The emission increase for the remaining pollutants in table 7 was due to an emission rise in 2011 that happened across the board. Fires were the primary cause of the emission increase for SO₂, PM_{2.5}, PM₁₀, and NH₃, but road dust also impacted PM during that time. Area sources were the chief contributor to NO_x increases and agricultural sources contributed the most to VOC emission increases in 2011.⁹⁶ The State believes that much of the increases for NO_x, PM₁₀, and PM_{2.5} may have been due to the use of newer modeling methodologies that were not available when the baseline projections were developed in 2002.⁹⁷ The State also observed that NO_x and PM_{2.5} emissions trended downward in the point EGU category between 2002 and 2011.⁹⁸

The updated 2014 NEI data in table 7 shows that the total state emissions decreased from 2011 for all of the visibility impairing pollutants except VOCs, which slightly increased.⁹⁹ The source categories in table 8 below (provided by the EPA) are the driving factors causing the total

⁹⁶ See Table 5.1 of the progress report (page 46 to 47).

⁹⁷ See page 47 of progress report. Emission changes were seen in the on-road mobile source inventory between 2008 and 2011 as a result of the transition from EPA's MOBILE6 model to the Motor Vehicle Emission Simulator (MOVES) model for estimation of emissions. Increases in on-road mobile source PM₁₀ and PM_{2.5} emissions have been documented as part of the new model's estimation methodology. The transition to MOVES model estimation methodology also resulted in increased NO_x emissions for on-road mobile sources. Modeling figures for fires also accounted for a major portion of the estimated emission increase for PM_{2.5} from 2008 to 2011.

⁹⁸ See Table 5.4 of the progress report (Page 51).

⁹⁹ See 70 FR 39162. VOC emissions did increase since 2008, but CENRAP modeling demonstrated that VOCs are not significant contributors to visibility impairment at Caney Creek and Upper Buffalo Wilderness areas.

NEI emission decreases from 2011 to 2014.¹⁰⁰ When comparing the individual categories, agricultural/biogenic and area source emissions account for the majority of emission increases from 2011 to 2014 with small increases also resulting from fugitive dust and point sources. Those increases are offset, though, by large reductions in the rest of the categories, resulting in overall net decreases of all pollutant emissions. Although fire emissions had a big impact on visibility impairing pollutants in 2011, there was a major improvement in 2014 indicated by reductions of all pollutants except NH₃, especially PM and VOC emissions. PM₁₀, PM_{2.5}, and VOC emissions from fire showed large reductions of 26,678 tpy, 22,058 tpy, and 49,182 tpy respectively. Likewise, road dust previously impacted PM levels in 2011 but showed substantial reductions of 105,187 tpy PM₁₀ and 11,448 tpy PM_{2.5} in 2014. Point sources had increases of NO_x, SO₂, NH₃, and VOC emissions but they netted out due to overall net decreases from the other source categories. Lastly, mobile emissions reduced for every pollutant except a small inconsequential non-road mobile increase for NH₃. NO_x and VOC exhibited the most mobile emission reductions of 15,124 tpy NO_x and 8,397 tpy VOC.

Table 8: 2014 Emission Data (tpy) and the Category Changes since 2011 for Arkansas

Category	NO _x	SO ₂	PM ₁₀	PM _{2.5}	NH ₃	VOC
Agricultural/ Biogenic	18,588 (-6,744)	0	153,477 (+17,805)	30,009 (+2,875)	58,981 (-58,976)	1,342,516 (-119,084)
Area ¹⁰¹	15,472 (-14,701)	321 (-1,684)	26,423 (+15,513)	16,455 (+8,428)	905 (+479)	69,117 (-10,484)
Fires	8,743 (-5,897)	4,624 (-2,946)	59,755 (-26,678)	50,198 (-22,058)	13,094 (+824)	133,197 (-49,182)
Fugitive Dust	0	0	17,143 (+1,953)	1,714 (+195)	0	0
Road Dust	0	0	97,066 (-105,187)	11,373 (-11,448)	0	0
Non-road Mobile	18,819 (-3,337)	41 (-16)	1,926 (-391)	1,835 (-376)	28 (+1)	23,204 (-6,161)

¹⁰⁰ As reported in the online EPA Emissions Inventory System (EIS) Gateway database.

¹⁰¹ See Page 45 of the progress report.

On-road Mobile	79,428 (-11,787)	333 (-27)	4,001 (-970)	2,436 (-545)	1,235 (-72)	33,171 (-2,236)
Point Sources	71,588 (+186)	85,714 (+792)	9,891 (-560)	5,936 (-846)	1,871 (+610)	24,632 (+1,821)
Total Emission Change	-42,279	-3,881	-98,515	-23,775	-57,134	-185,326

*The numbers in parentheses indicate an increase (+) or decrease (-) in emissions from 2011.

The EPA proposes to conclude that the State has adequately addressed the applicable provisions under 40 CFR 51.308(g). The State tracked changes in emissions by category across the entire emission inventory and the results show that the emissions from SO₂, NO_x, and PM, the main contributors of regional haze in Arkansas, have all decreased since the 2008 SIP submittal. The analysis provides the most recent period for which data was available in practical terms (2008 to 2011) from when the State submitted its regional haze SIP.¹⁰² The EPA provided an additional update with 2014 NEI data to complement the State's report. These data indicate that overall emissions of all visibility impairing pollutants have reduced from 2011 to 2014. SO₂, NO_x, and PM emissions have continued to show a downward trend since the 2008 submittal.¹⁰³ As discussed in section II.C. in this proposed rulemaking, more recent available data shows that SO₂ and NO_x emissions from EGU point sources in the state have decreased from the baseline levels in 2002, especially since 2015. The EPA concludes that the State presented an adequate analysis tracking emission trends for the key visibility impairing pollutants across Arkansas.

F. Assessment of Changes Impeding Visibility Progress

¹⁰² While ideally the five-year period to be analyzed for emission inventory changes is the time-period since the current regional haze SIP was submitted, there is an inevitable time lag in developing and reporting complete emissions inventories once quality-assured emissions data becomes available. Therefore, there is some flexibility in the five-year time-period that states can select.

¹⁰³ See 70 FR 39162. VOC emissions did increase since 2008, but CENRAP modeling demonstrated that VOCs are not significant contributors to visibility impairment at Caney Creek and Upper Buffalo Wilderness areas.

The State indicated in the progress report¹⁰⁴ that there were no significant changes in anthropogenic emissions that limited or impeded progress in reducing pollutant emissions and improving visibility as contemplated by the 2008 Arkansas Regional Haze SIP. The State's Class I areas showed overall downward trends in visibility impairment. The State's current analysis of emission reductions and categorized inventories presented in the progress report, along with more recent emission data evaluated by the EPA in this action (see sections II.C and II.E), show that no significant changes in emissions within the state are occurring to impede visibility improvement or adversely affecting the two Class I areas in Arkansas. There are also no significant emission changes from sources outside of Arkansas that are adversely affecting Arkansas' Class I areas. Through consultation with adjacent states, it was determined and agreed upon that additional emission reductions from other states are not necessary to address visibility impairment at Caney Creek and Upper Buffalo Wilderness areas for the first implementation period.¹⁰⁵ The participating states also determined before the 2008 SIP submittal through regional modeling that Missouri's Class I areas were expected to be on course to meet their respective 2018 RPGs. The current data confirms the projected trend and shows that all Class I areas within and outside the state impacted by Arkansas emissions are now currently meeting their RPGs for the first implementation period as discussed in section II.G of this action. No significant changes in emissions have limited or impeded progress in improving visibility. The EPA proposes to conclude that the State has adequately addressed the applicable provisions under 40 CFR 51.308(g) regarding assessing any changes that could impede visibility progress.

G. Assessment of Current Strategy to Meet RPGs

¹⁰⁴ See Page 54 of the progress report.

¹⁰⁵ See 76 FR 64196.

In its progress report, the State assessed the strategies in the 2008 Arkansas Regional Haze SIP based upon projected emissions and modeling results. The State determined that the strategies were sufficient to enable Arkansas and other states with Class I areas affected by emissions from Arkansas to meet all established RPGs. The evaluation set forth by the State in the progress report for the Class I areas in Arkansas was based on the RPGs established in the 2008 Arkansas Regional Haze SIP that were disapproved in the 2012 action.

As part of the 2018 Arkansas Regional Haze SO₂ and PM SIP revision, Arkansas reevaluated its RPGs and long-term strategy. The 2008 SIP RPGs for the twenty percent worst days were recently replaced by the State with new revised RPGs¹⁰⁶ defined in the Arkansas Regional Haze SO₂ and PM SIP revision.¹⁰⁷ The 2018 RPGs for Caney Creek and Upper Buffalo were revised slightly downward from the 2008 SIP RPGs to 22.47 dv and 22.51 dv for the twenty percent worst days. The revised 2018 RPGs were estimated based on scaling Arkansas SO₄²⁻ and NO₃⁻ point source impacts from CENRAP's 2018 CAMx modeling results by the change in emissions of NOx and SO₂ due to revised regional haze SIP controls required by the end of 2018. The State made updates to reflect the most recent three years of data (2014 to 2016) for emissions and heat inputs that were used for Arkansas EGUs. Currently, both Caney Creek and Upper Buffalo Wilderness areas are achieving greater visibility improvement than the revised 2018 RPGs.¹⁰⁸ Based on available monitored data, the current visibility trendlines are below their respective 2018 RPGs from the baseline conditions and visibility is continuing to improve.

¹⁰⁶ See the *sip-rev-rpg-calcs.xlsx* spreadsheet at <https://www.adeq.state.ar.us/air/planning/sip/regional-haze.aspx>.

¹⁰⁷ See page 48 of the Arkansas Regional Haze SO₂ and PM SIP revision.

¹⁰⁸ See Figures 11 and 12 on pages 50 to 52 of the Arkansas Regional Haze SO₂ and PM SIP revision.

Sources in Arkansas also impact Hercules Glades and Mingo Wilderness Class I areas in Missouri. Arkansas stated in its progress report that the 2018 RPGs for Missouri's Class I areas would be met, but it did not restate those 2018 RPGs or compare them to the available monitored data. Recent information for these areas, however, complements the State's analysis and shows that Missouri is indeed currently on track to achieve its 2018 RPGs for Hercules Glades and Mingo Wilderness.¹⁰⁹ The 2012 to 2016 five-year rolling average of observed visibility impairment for the twenty percent haziest days at Hercules Glades Wilderness Area is 20.72 dv (2.34 dv below Missouri's 2018 RPG). The 2012 to 2016 five year-rolling average of observed visibility impairment for the twenty percent haziest days at Mingo Wilderness Area is 22.34 dv (1.37 dv below Missouri's 2018 RPG goal). Arkansas concluded that the visibility improvement observed at the IMPROVE monitors indicates that sources in Arkansas are not interfering with the achievement of Missouri's 2018 RPGs for Hercules Glades and Mingo Wilderness Areas. Therefore, we are proposing to find that Arkansas' implementation plan is sufficient to ensure that other states' visibility RPGs for the first planning period for their respective Class I areas are being met.

The EPA proposes to conclude that the State has adequately addressed the applicable provisions under 40 CFR 51.308(g) to assess the current strategy to meet RPGs. The State has assessed the implementation plan in place at the time the progress report was submitted, and we find that the implementation plan as it currently exists is sufficient to enable the state of Arkansas and other nearby states to meet their RPGs. The realized and planned controls and reductions that form the current strategy for this first implementation period are sufficient to meet the revised RPGs as established in the Arkansas Regional Haze SO₂ and PM SIP revision.

¹⁰⁹ See *Visibility Progress_Update_2016.xlsx* in the docket of this action.

Both Class I areas in Arkansas are currently meeting the revised 2018 RPGs for the twenty percent worst days. Visibility data from Caney Creek and Upper Buffalo Wilderness areas also show that the goal of no visibility degradation for the twenty percent best days is being achieved. Missouri's two Class I areas are also on track to achieve their visibility reduction goals.

H. Review of Visibility Monitoring Strategy

The monitoring strategy for regional haze in Arkansas relies upon participation in the IMPROVE¹¹⁰ network, which is the primary monitoring network for regional haze nationwide. The IMPROVE network provides a long-term record for tracking visibility improvement or degradation. Arkansas currently relies on data collected through the IMPROVE network to satisfy the regional haze monitoring requirement as specified in 40 CFR 51.308(d)(4) of the Regional Haze Rule.

In its progress report, Arkansas summarized the existing IMPROVE monitoring network and its intended continued reliance on IMPROVE for visibility planning. In Arkansas, there are two IMPROVE sites. The first IMPROVE site is located in Polk County at the Ouachita National Forest and represents the 14,460 acres of the Caney Creek Wilderness. The second IMPROVE site is located in Newton County at the Ozark National Forest and represents the 11,801 acres of the Upper Buffalo Wilderness area, including the original Wilderness and the additions to it.¹¹¹ Arkansas is committed to meeting the requirements under 40 CFR 51.308(d)(4)(iv), and reports annually to the EPA visibility data for each of Arkansas' Class I areas. For the progress report, Arkansas has evaluated its monitoring network and found that there have not been any changes

¹¹⁰ See 64 FR 35715 (July 1, 1999). Data from IMPROVE show that visibility impairment caused by air pollution occurs virtually all the time at most national parks and wilderness areas. The average visual range in many Class I areas (i.e., national parks and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States is 100-150 km, or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range is less than 30 km, or about one-fifth of the visual range that would exist under estimated natural conditions.

¹¹¹ See Table 8.1 in the progress report (page 63).

from the 2008 Arkansas Regional Haze SIP network. Arkansas reaffirmed its continued reliance upon the IMPROVE monitoring network. Arkansas also explained the importance of the IMPROVE monitoring network for tracking visibility trends at its Class I areas and identified no expected changes in this network. The EPA proposes to conclude that the State has adequately addressed the applicable provision under 40 CFR 51.308 for a visibility monitoring strategy.

I. Determination of Adequacy of Existing Implementation Plan

Arkansas noted that it was committed to correcting the portions of the 2008 Arkansas Regional Haze SIP that were disapproved by the EPA and provided a negative declaration stating that no additional controls were necessary during the first implementation period.¹¹² Since the progress report's submission in 2015, the EPA promulgated a FIP and the State subsequently submitted two SIP revisions to fulfill its commitment to address the disapproved portions identified in the 2012 action (the 2017 Arkansas Regional Haze NO_x SIP revision and the 2018 Arkansas Regional Haze SO₂ and PM SIP revision).¹¹³ When considering the new SIP requirements; the SIP requirements that we proposed for approval; the remaining FIP elements; the visibility and emission information provided in the progress report; and the more recent data evaluated by the EPA; it is clear that the implementation plan is adequate to meet its emission reductions and visibility goals for the first implementation period. Current visibility conditions in Arkansas have improved beyond the more stringent 2018 RPGs that were introduced in the 2018 Arkansas Regional Haze SO₂ and PM SIP revision. Visibility has also improved at both Missouri Class I areas affected by Arkansas sources. Lastly, the updated emission trends show that SO₂,

¹¹² Specifically, the EPA disapproved certain BART compliance dates; the State's identification of certain BART-eligible sources and subject-to-BART sources; certain BART determinations for NO_x, SO₂, and PM; the reasonable progress analysis and RPGs; and a portion of the long-term strategy. The remaining provisions of the 2008 Arkansas Regional Haze SIP were approved.

¹¹³ See final action approved on February 12, 2018 for the Arkansas Regional Haze NO_x SIP revision (83 FR 5927) and the EPA's proposed approval on November 30, 2018 for the Arkansas Regional Haze SO₂ and PM SIP revision (83 FR 62204).

NO_x, and PM emissions (the main contributors to regional haze in Arkansas) have all been decreasing. The Arkansas Regional Haze NO_x SIP revision,¹¹⁴ the Arkansas Regional Haze SO₂ and PM SIP revision (if EPA's proposed approval is finalized),¹¹⁵ and the remaining part of the FIP that addresses the BART and associated long-term strategy requirements for Donatar together fully address the deficiencies of the 2008 Arkansas Regional Haze SIP. Because the SIP and FIP will ensure the control of SO₂ and NO_x emission reductions relied upon by Arkansas and other states in setting their RPGs, the EPA is proposing to approve Arkansas' finding that there is no need for revision of the existing implementation plan to achieve the RPGs for the Class I areas in Arkansas and in nearby states impacted by Arkansas sources. We, therefore, propose to approve Arkansas' negative declaration under 40 CFR 51.308(h) that no additional controls are needed.

J. Consultation with Federal Land Managers

The Regional Haze Rule requires the State to provide the designated Federal Land Managers (FLMs) with an opportunity for in-person consultation at least sixty days prior to holding any public hearings on a SIP revision for the first implementation period. Arkansas invited the FLMs to comment on its draft progress report on April 25, 2014, for a sixty-day comment period ending June 24, 2014, that was extended until June 27, 2014, per FLM request. The FLM's comments and Arkansas' responses are presented in Appendix A of the progress report. ADEQ also engaged in multiple conference calls arranged by CenSARA for the central states with the designated FLMs which took place on February 27, 2012, April 30, 2013, July 30, 2013, August 13, 2013, and September 12, 2013. The EPA proposes to conclude that Arkansas has adequately addressed the applicable FLM provisions under 40 CFR 51.308(i).

¹¹⁴ Final action approved on February 12, 2018 (83 FR 5927).

¹¹⁵ Proposed approval on November 30, 2018 (83 FR 62204).

III. The EPA's Proposed Action

The EPA is proposing to approve the State of Arkansas' regional haze five-year progress report SIP revision (submitted June 2, 2015) as meeting the applicable regional haze requirements set forth in 40 CFR 51.308(g). The EPA is also proposing to approve the State of Arkansas' determination of adequacy under 40 CFR 51.308(h) that no additional controls are needed. Lastly, the EPA is proposing to find that the State of Arkansas fulfilled its requirement in 40 CFR 51.308(i) regarding state coordination with FLMs.

IV. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, the EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993), 13563 (76 FR 3821, January 21, 2011);
- Is not an Executive Order 13771 (82 FR 9339, February 2, 2017) regulatory action because SIP approvals are exempted under Executive Order 12866;
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);

- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and
- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994). In addition, the SIP is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the proposed rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Best Available Retrofit Technology, Incorporation by reference, Intergovernmental relations, Nitrogen oxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Regional haze, Sulfur dioxide, Visibility, Volatile organic compounds.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: March 21, 2019.

Anne Idsal,

Regional Administrator, Region 6.

[FR Doc. 2019-05861 Filed: 3/27/2019 8:45 am; Publication Date: 3/28/2019]